

## AIRFLOW ADJUSTING DEVICE OF AIR CUSHION SHOE

### FIELD OF THE INVENTION

The present invention relates to air cushion shoes, and particular to a  
5 airflow adjusting device of an air cushion shoe, wherein the airflow  
adjusting device has a buffer portion so that the impacts applied to the sole  
of the air cushion shoe is adjustable to match the requirement of different  
exercise.

### 10 BACKGROUND OF THE INVENTION

Air cushion shoes have become a popular trend of current shoes since  
the air cushion shoes provide elastic soles to users so as to buffer the  
impact applied on the bottoms of the legs. Moreover, the air cushion  
shoes increase the efficiency in exercises.

15 In the prior art, an air cushion shoe includes an air cushion body, a  
sole layer and a shoe cushion. The shoe cushion has a plurality of air  
holes. The air cushion body includes an air suction compressing chamber,  
an air valve, and a heel pump. A buffer block is installed at the rear end  
of the shoe cushion for actuating the heel pump so as to provide a buffer  
20 force as the shoe treads on the ground. Thereby, by the structure of the  
air cushion body, sole layer and shoe cushion, the sole of the shoes has the  
effects of air exchange and shock-proof.

However, in the prior art, the buffering effect of the air cushion shoe  
is fixedly confined by the structure of the shoe, which is determined in the  
25 manufacturing process of the air cushion shoe, but in practical, the impacts

upon the sole of an air cushion shoe are different according to the kinds of exercises. For example, in walking, the impact is smaller, while in playing basketball, the impact is very large, but the prior art design has only fixed buffer effect. The buffer force of the air cushion body is  
5 unadjustable. Thereby, the feet of the user cannot have a preferred protection.

### **SUMMARY OF THE INVENTION**

Accordingly, the primary object of the present invention is to provide  
10 an airflow adjusting device of an air cushion shoe, wherein the airflow adjusting device has a buffer portion so that the impacts applied to the sole of the air cushion shoe is adjustable to match the requirement of different exercise.

To achieve above object, the present invention provides an airflow  
15 adjusting device of an air cushion shoe. The airflow adjusting device comprises an air cushion body having a buffer portion, an air inlet connected to the buffer portion and an air outlet connected to the buffer portion. When the buffer portion is impacted, the buffer portion will be compressed and thus induce an elastic force to have a buffer effect.  
20 When the buffer portion is compressed, air in the buffer portion will be drained out from the air outlet. When the compressing force disappears, the buffer portion will restore and air is sucked from the air inlet. An adjusting device includes an adjusting seat and an adjusting button screwed on the adjusting seat; and a stopper being formed on the adjusting  
25 button for changing air flow rate of the air flowing out of the air outlet so

as to change the elasticity of the buffer portion.

The various objects and advantages of the present invention will be more readily understood from the following detailed description when read in conjunction with the appended drawing.

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#### **BRIEF DESCRIPTION OF THE DRAWINGS**

Fig. 1 is a partial exploded view of the airflow adjusting device of an air cushion shoe of the present invention.

Fig. 2 is a cross section view about the adjusting device of the present  
10 invention.

Fig. 3 is a perspective view of the air cushion body of the airflow adjusting device of the present invention.

Figs. 4, 5 and 6 are cross section views about the operation of the air cushion body of the present invention.

Figs. 7 and 8 are schematic views showing the assembly of the air  
15 cushion of the airflow adjusting device of the present invention.

#### **DETAILED DESCRIPTION OF THE INVENTION**

In order that those skilled in the art can further understand the present  
20 invention, a description will be described in the following in details. However, these descriptions and the appended drawings are only used to cause those skilled in the art to understand the objects, features, and characteristics of the present invention, but not to be used to confine the scope and spirit of the present invention defined in the appended claims.

25 With reference to Fig. 1, the airflow adjusting device of an air cushion

shoe of the present invention is illustrated. The air adjusting device of the present invention has the following elements.

An air cushion body 1 has a buffer portion 10, an air inlet 11 connected to the buffer portion 10 and an air outlet 12 connected to the buffer portion 10. When the buffer portion 10 is impacted, the buffer portion 10 will be compressed and thus induce an elastic force to have a buffer effect. When the buffer portion 10 is compressed, air in the buffer portion 10 will be drained out from the air outlet 12. When the compressing force disappears, the buffer portion 10 will restore and air is sucked from the air inlet 11. Thereby, the air cushion shoe has a vibration-proof effect.

An adjusting device 2 includes an approximate round adjusting seat 20 and an approximate hemispherical adjusting button 21. An exhausting channel 22 penetrating through two sides of the adjusting seat 20 is formed within the adjusting seat 20. A middle section of the exhausting channel 22 is formed with an air slot 221 having a smaller diameter than that of the exhausting channel 22. A guide tube 23 serves to connect the air outlet 12 of the air cushion body 1 with the exhausting channel 22 of the adjusting device 2. An upper center of the adjusting seat 20 is formed with a screw hole 24. A tapered space is formed in the adjusting seat 20 and below the screw hole 24. The tapered space overlaps with one section of the air slot 221.

A center of a lateral side of the hemispherical adjusting button 21 is installed with a screwed post 26 for screwing the screw hole 24 of the adjusting seat 20. A front end of the screwed post 26 is formed with a

stopper 251 corresponding to the tapered space 241 of the adjusting seat 20. The adjusting button 21 has a cambered side 26 for being pushed by a user.

By above said structure, the screw post 25 of the adjusting button 21 is screwed into the screw hole 24 of the adjusting seat 20 and the stopper 251 of the screw post 25 is received in the tapered space 241. Then guide tube 23 serves to connect the air outlet 12 of the air cushion body 1 to the exhausting channel 22 of the adjusting device 2. Thus, assembly of the present invention is complete.

In use of the present invention, referring to Fig. 4, when the adjusting button 21 of the adjusting device 2 is tightened. The screw post 25 will screw into the screw hole 24 so as to be received in the tapered space 241. Moreover, the overlapped portions of the vent 221 and the tapered 241 are cut out so that the air at the two ends of the vent 221 and the exhausting channel 22 can not flow out successfully. Thereby, it can not be compressed easily and thus the airflow adjusting device is elastic to be suitable for exercises with larger impacts.

Referring to Fig. 5, when the adjusting button 21 of the adjusting device 2 is released, the screw post 25 will screw out along the screw hole 24. The stopper 251 at a front end of the screw post 25 is screwed out with the screw post 25 so as to retract slightly from the tapered space 241. Thereby, the vent 221 has a part of space for receiving air. Then, the buffer portion 10 of the air cushion body 1 can be compressible easily and the elasticity is smaller so that it is suitable for exercises with middle impacts.

Referring to Fig. 6, if the adjusting button 21 of the adjusting device 2 is released continuously, the vent 221 will overlap with the stopper 251 so that the buffer portion 10 of the air cushion body 1 will vent air successfully so that the air cushion body 1 can be compressed to a minimum volume. Thereby, at this moment, the present invention can be used to exercises with less impacts. Thereby, the air exhaustion of the buffer portion 10 can be adjusted by the adjusting device 2 so that the buffer portion 10 has different elasticity. Thereby, the user can adjust the elasticity as desired. Thus the shoes using the airflow adjusting device of the present invention can protect the feet

With reference to Fig. 7, the air cushion body 1 of the present invention is installed to the sole 30 so that it provides a buffer effect to the feet. The adjusting device 2 is installed at one side of the shoe so that the user can operate the stopper 251 on the cambered lateral surface 26 of the adjusting button 21 and the amount of exhausting air of the vent 221 is controlled so that the buffer portion 10 has different elasticity to match different exercises.

With reference to Fig. 8, in the present invention, a lateral side of the sole 30 can be formed with a transparent window portion 31 so that the compression of the buffer portion 10 can be viewed externally.

The present invention is thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the present invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.